

PARAGUAY AND URUGUAY

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PARAGUAY

The Republic of Paraguay, which is northeast of Argentina in central South America, has an area of about 406,750 square kilometers (km²). In 2002, the area supported a population of about 5.9 million people, the gross domestic product (GDP) per capita was \$4,600, and the GDP was \$26.2 billion based on 2001 purchasing power parity. Of the total population, 36% was estimated to exist below the poverty line. Industry accounted for about 26% of the GDP compared with agriculture (29%) and services (45%). A large informal segment of the economy included microenterprises, urban street vendors, and the re-export of consumer goods. The formal economy grew by an average of about 3% per year from 1995 to 1997, but according to Paraguayan Central Bank, Paraguay's GDP declined by 2.2% in 2002 from 2001 (U.S. Central Intelligence Agency, 2002a¹).

The mineral industry of Paraguay accounted for less than 1% of its GDP and was focused on the production of cement and the extraction of industrial minerals, such as clays, gypsum, limestone, marble, ocher, sand, and talc. Other mineral-related activity, which was based on imported raw materials, included the production of pig iron and steel and the refining of petroleum.

Paraguay relied entirely on imports to meet its crude oil demand, which amounted to 29,000 barrels per day (bbl/d) in 2001, the last year for which data are available. The oil refinery continued importing crude from various producing countries (Yamana Resources Inc., 2001).

The 5,300-kilometer (3,300-mile) gas pipeline from Bolivia through Argentina, Paraguay in route to Brazil, could allow Paraguay to incorporate natural gas into its national fuel mix, which relied heavily upon hydroelectric generation and imported petroleum in 2002 (U.S. Energy Information Administration, 2002a§).

Morrison Mining Co., Ltd. of Canada (MMC) was searching for oil in the Boquerón Block near the Bolivian Chaco. Later, in February 2002, negotiations were reportedly underway for a joint venture between a local operator Primo F. Cano Martinez and MMC (Ellis, 2002a).

Hydroelectric powerplants made Paraguay a low-cost provider of electricity in South America. Estimates of electricity availability for export ranged from 51% to more than 70% (U.S. Energy Information Administration, 2000a§).

URUGUAY

The Republic of Uruguay, which is in southern South America and borders the South Atlantic Ocean between Argentina and Brazil, has an area of about 176,220 km². In 2002, the population was about 3.4 million. The GDP per capita was \$9,200, and the overall GDP was \$31 billion based on 2001 purchasing power parity. The Uruguayan economy remained dependent on agriculture and a well-educated workforce. The industrial sector, which accounted for 29% of the GDP, was largely based on agricultural products production. The GDP fell by 10.8% in 2002, compared with 1.5% in 2001 and 1.3% in 2000. The unemployment rate was estimated to be about 15.2% in 2001. Uruguay's economy has not grown since 1999, and market reforms have moved ahead slowly. The annual inflation rate decreased to about 3.6% in 2001. The total labor force in 2001 was estimated to be about 1.2 million, distributed as follows: agriculture, 14%; industry, 16%; and services, 70% (U.S. Central Intelligence Agency, 2002b§).

Because Uruguay has no fossil fuel resources and only a small amount of hydroelectric power, the country must rely heavily on imports to meet its energy needs. Energy integration has been on the rise throughout the Mercado Común del Cono Sur with Argentina, Brazil, and Paraguay (Chile and Bolivia are associate members); the use of natural gas in particular has been increasing rapidly. Uruguay must import 43,000 barrels of oil per day (bbl/d) for its consumption. Administración Nacional de Combustibles, Alcohol y Portland (ANCAP), which is the state cement and oil company, owned Uruguay's only refinery the 37,000-bbl/d La Teja refinery in Montevideo (Administración Nacional de Combustibles, Alcohol y Portland, 2003).

Pacific Enterprises Inc. of the United States has been awarded the economic bid by the government of Uruguay to build separate natural gas and propane distribution systems to serve most of the country. The contract is expected to cost \$150 million to \$200 million, and calls for Pacific Enterprises and partner ANCAP, to build separate natural gas and liquefied petroleum gas (LPG) distribution networks that will reach 177,000 potential customers. The project is to be completed by 2003. Natural gas supplies will come from Buenos Aires, Argentina. LPG supplies will be provided by ANCAP. Pacific Enterprises expects to be joined with Madrid, Spain-based Union Fenosa in developing and operating the network system (Pipe Line & Gas Industry, 2003).

ANCAP was also seeking associations with foreign oil companies to help find new oil reserves. New natural gas reserves were expected to be found during the next few years. Plants that use oil are to be converted to dual use (oil and gas). Natural gas will come

¹References that include a section mark (§) are found in the Internet References Cited section.

from new pipelines that will link gas-rich Argentina to Uruguay; this will include the \$160 million Gasoducto Cruz del Sur that was being built to enhance natural gas trade among Argentina, Brazil, and Uruguay (U.S. Energy Information Administration, 2002b§).

Although the country is small, Uruguay has a significant industrial minerals sector. The country was an important producer of cement and the extraction of construction materials and dimension stone. The industrial materials mined included basalt, dolomite, feldspar, gypsum, limestone, marl, and quartz. Ornamental rocks, such as flagstone, granite, and marble, also were produced, as were semiprecious stones for jewelry, such as agate and amethyst. The ongoing extraction projects totaled more than 350 facilities; most were small in scale.

Among these materials, limestone, which was used in the manufacture of portland cement, had significant potential for export growth. In 2002, Uruguayan output of limestone was 1.3 Mt, which was an increase of 3% compared with that of 2000. In 2002, cement production remained at about the same level as that of 2001 (1 Mt). In 2001, Argentinean cement producer Cementos Loma Negra C.I.A.S.A., which borders Uruguay to the south and west, formed a new company Cementos del Plata. Loma Negra sells most of its production to ANCAP in Uruguay and some to Argentina. In addition, Loma Negra provided technical assistance to Compañía Uruguaya de Cemento Portland and to Compañía Nacional de Cementos in Uruguay. These two companies planned to build a new plant as a joint venture. Uruguay had three cement companies, with a combined capacity of about 1 Mt. The largest one was ANCAP [510,000 metric tons per year (t/yr)], with two plants at Minas and Paysandú] followed by Compañía Uruguaya de Cemento Portland (450,000 t/yr), with two plants at Sayago and Verdún, and Compañía Nacional de Cementos (55,000 t/yr), with one plant at Maldonado (International Cement Review, 2000).

In the past few years, the Uruguayan mining sector has started to change with the revival of minerals prospecting and exploitation, which had been idle for many years. The country has opened its doors to foreign investment as a result of changes in national legislation that have improved the business environment. Mining output has grown at a yearly pace of almost 4% during the past 5 years.

Minera San Gregorio S.A. [a subsidiary of Crystallex International Corp. (Crystallex)] accounted for about 70% of Crystallex's total gold production in 2002. Production of 66,832 ounces, or 2,079 kilograms (kg), of gold was equivalent to 2001 levels. Total cash cost of production decreased to \$237 per ounce in 2002 from \$262 per ounce in 2001 in part owing to less waste stripping. The San Gregorio Mine was forecasted to produce 52,000 ounces, or 1,617 kg, of gold in 2003. Cash operating costs are expected to increase to approximately \$250 per ounce with the continued processing of lower grade ore (Crystallex International Corp., 2002).

Uruguay Mineral Exploration Inc. (UME) entered into a joint venture with Crystallex in 2002, which will allow Crystallex, through its subsidiary Minera San Gregorio S.A., to evaluate UME's Sobre Saliente mineral project near Minera San Gregorio. Under the terms of the agreement, Crystallex will begin a drilling program to establish mine reserves. Once this has been completed, Crystallex will have the option to begin mining operations. The ore will be processed at the San Gregorio mill (Uruguay Mineral Exploration Inc., 2002).

Because Uruguay's rivers were highly dammed, the potential for additional hydroelectric powerplants was limited. With the region's increased economic integration, Uruguay planned to increase the use of natural gas in homes and for electricity generation at existing or new powerplants (U.S. Energy Information Administration, 2002b§).

British Gas Plc Group (BG Group) announced that on November 8, 2002, the first gas flowed beneath the River Plate from Argentina to Montevideo, Uruguay, through the \$160 million Gasoducto Cruz del Sur S.A. The pipeline will be operated by BG Group and the Pan American Energy consortium under a 30-year concession agreement awarded by the Government of Uruguay. BG was a 40% shareholder; the other partners were Pan American Energy Consortium (30%), ANCAP (20%), and Wintershall AG of Germany (10%) (BG Group Plc, 2002).

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Major Source of Information

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TABLE 1
PARAGUAY AND URUGUAY: PRODUCTION OF MINERAL COMMODITIES¹

(Metric tons unless otherwise specified)

Country and commodity	1998	1999	2000	2001	2002 ^c
PARAGUAY ²					
Cement, hydraulic thousand tons	730 ^r	730 ^r	650 ^r	650 ^r	650
Clays:					
Kaolin	66,700	66,600	66,500	66,500	66,700
Other (unspecified)	41,371	38,192	233,500 ^r	233,500 ^r	233,000
Gypsum ^c	4,500	4,300	4,400	4,300 ^{r,3}	4,300
Iron and steel:					
Pig iron	65,545	61,281	82,018	71,765	87,600 ³
Semimanufactures	52,129	46,774	63,287	56,729	51,700 ³
Steel, crude	56,243	55,689	76,784	67,034	80,400 ³
Lime ^c	90,000	90,000	90,000	100,000 ^{r,3}	100,000
Petroleum, refinery products:					
Distillate fuel oil ^c thousand 42-gallon barrels	600	600	600	600	600
Gasoline do.	250 ^e	250 ^e	632 ^r	675 ^r	670
Jet fuel do.	110 ^e	100 ^e	21 ^r	21 ^r	20
Kerosene do.	50 ^e	50 ^e	191 ^r	249 ^r	200
Liquefied petroleum gas do.	10 ^e	10 ^e	628 ^r	638 ^r	630
Residual fuel oil do.	450 ^e	450 ^e	255 ^r	263 ^r	450
Unspecified ^c do.	35	37	37	37	37
Total do.	1,510 ^e	1,500 ^e	2,364 ^r	2,483 ^r	2,610
Pigments, mineral, natural, ocher ^c	300	300	300	300	300
Sand, including glass sand ^c	10,000	10,000	25,000 ^r	27,500 ^r	25,000
Stone: ^c					
Dimension thousand tons	70	70	70	70	70
Crushed and brokened:					
Limestone (for cement and lime)	16,300 ^r	16,300 ^r	16,320 ^{r,3}	16,320 ^{r,3}	16,000
Marble	750	750	750	750	750
Other ^c	2,000	2,000	2,000	2,000	2,000
Talc, soapstone, pyrophyllite ^c	200	200	200	200	200
URUGUAY					
Aluminum, secondary ^c	45	45	45	45	45
Barite	65	50	33	12 ^r	15
Bentonite	60 ^e	55 ^e	120 ^r	125 ^r	125
Cement, hydraulic thousand tons	872 ^r	789 ^r	700 ^e	1,015 ^r	1,000
Clays, unspecified	41,371	38,192	24,483	24,886 ^r	25,000
Coke, gashouse	6,000	5,000	5,000	5,500	5,000
Feldspar	2,240	1,556	2,493	4,722 ^r	4,700
Gemstones, semiprecious:					
Agate	270	362 ^e	529	416 ^r	420
Amethyst	48	45 ^e	87	179 ^r	180
Gold kilograms	1,985	2,400 ^e	2,177	2,083	2,079 ³
Gypsum thousand tons	1,123	1,050	1,076	1,127 ^r	1,130
Iron and steel:	8,618	3,837	5,853	9,743 ^r	9,800
Iron ore					
Metal:	200	200	200	200	200
Ferrous alloys, electric furnace ferrosilicon crust ^c	47,345	41,611	34,312	28,830	32,400
Semimanufactures	52,012	45,404	38,102	30,890	34,900
Steel, crude	10,000	10,000	10,000	10,000	10,000
Lime ^c					
Petroleum, refinery products: ^c	4,200	4,150	4,100	4,100	4,100
Distillate fuel oil thousand 42-gallon barrels	2,100	2,150	2,200	2,200	2,200
Gasoline do.	500	525	500	500	500
Kerosene do.	425	395	400	400	400
Liquefied petroleum gas do.	3,600	3,620	3,600	3,600	3,600
Residual fuel oil do.	260	280	280	280	280
Unspecified do.	11,100	11,100	11,100	11,100	11,100
Total do.					
Sand and gravel:	2,753	2,506	2,699	2,697 ^r	2,700
Sand, common thousand tons	40,192	49,887	49,776	40,373 ^r	41,000
Gravel do.	40,192	49,887	49,776	40,373 ^r	41,000

See footnotes at end of table.

TABLE 1--Continued
PARAGUAY AND URUGUAY: PRODUCTION OF MINERAL COMMODITIES¹

(Metric tons unless otherwise specified)

Country and commodity	1998	1999	2000	2001	2002 ^e
URUGUAY--Continued					
Stone:					
Flagstone	4,000	4,100 ^e	3,688	3,590 ^r	3,600
Granite:					
Dimension	22,955	6,397	6,817	4,369 ^r	4,400
Crushed and brokened, alum schist	450 ^e	470	810	528 ^r	530
Other, rough stone	--	--	2,386 ^r	4,052 ^r	4,100
Diorite	1,123	1,050	1,076	1,092	1,100
Dolomite	17,440	8,439	8,229	5,468 ^r	5,470
Limestone	1,516	1,471	1,259	1,300	1,300
Marble, in blocks and broken: ^e					
Onyx	100	119	60	121 ^{r,3}	120
Travertine	11	15	35	39	30
Other, unspecified	340 ³	192	163	170	160
Marl	68,810	33,387	35,000	6,780 ^r	6,800
Quartz	52	50	20	146 ^r	150
Other, including ballast ^e	2,690	2,500	2,821	2,523 ^r	2,500
Sulfur, elemental, byproduct	2,874	3,119	3,000 ^e	3,000 ^e	3,000
Talc, soapstone, pyrophyllite	972	2,905	2,903	1,694 ^r	1,700
Tuff, tufa	866	800 ^e	1,044	1,185 ^r	1,200

^eEstimated; estimated data are rounded to no more than three significant digits; may not add to totals shown. ^rRevised. -- Zero.

¹Includes data available through May 2003.

²In addition to the commodities listed, construction materials (clays, miscellaneous rock, sand, and weathered tuffs) were presumably produced. Available information is inadequate to make reliable estimates of output levels.

³Reported figure.